




# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,874	07/28/2003	Marcos Dantus	6550-000057/COC	3815
27572	7590	10/19/2004	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C.			NGUYEN, KIET TUAN	
P.O. BOX 828			ART UNIT	
BLOOMFIELD HILLS, MI 48303			PAPER NUMBER	
			2881	

DATE MAILED: 10/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/628,874	Applicant(s) DANTUS ET AL.	
	Examiner Kiet T. Nguyen	Art Unit 2881	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 August 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) 41 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-17,29-33,42 and 43 is/are allowed.
- 6) ☒ Claim(s) 18-21,23-28,34,36 and 37 is/are rejected.
- 7) ☐ Claim(s) 22,35 and 38-40 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>20041015</u> . | 6) <input type="checkbox"/> Other: _____  |

Applicant's election of Group I including claims 1-40 and 42-43 in the reply filed on 10 August 2004 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

It is noted that the non-elected claim 41 is requested to cancel.

***Objected Informalities***

The disclosure is objected to because of the following informalities:

**In The Claims**

Claim 40, line 2, "mutliphoton" should be -- multiphoton --.

Appropriate correction is required.

***Rejection Under 35 U.S.C. 112, Second Paragraph***

Claim 38 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 38 recites the limitation "the pulse shaper" in line 1. There is insufficient antecedent basis for this limitation in the claim.

***Rejection Under 35 U.S.C. 102(b)***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 18-20 and 25-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Horton (4,288,691).

Horton (4,288,691) discloses, in figs. 1-5, a system for temporal pulse shaping of a laser beam for ionizing isotope samples. The system includes a laser source 12 for producing a pulse laser beam 18 to irradiate the samples, thereby chemical bonds are cleaved in the samples; a pulse shaper 24 for varying shapes of the pulse laser beam 26; a control system including a timer 96, a delay 106, drivers 108, PC 98-104, COMB. 134 and 140 for modifying and optimizing at least one characteristic of the laser beam pulse; and a mass spectrometer 150.

***Rejection Under 35 U.S.C. 103(a)***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 21, 23-24, 34 and 36-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horton (4,288,691) in view of Futami et al. (6,573,493) and Sucha et al. (6,723,991).

Horton discloses all the features as discussed above except the laser beam pulses with less than 50 or 51 femtosecond durations as recited in claim 21 or 36; a specimen substrate having isolated molecules as recited in claim 23; living tissue as recited in claim 34; and an optical tomography image as recited in claim 37.

Futami et al. (6,573,493) disclose, in figs. 1-16, an apparatus for using a femtosecond laser beam pulse having durations in arrange 2 to 500 femtoseconds (see col. 4, lines 47-49) for ionizing a sample, thus would have been obvious to one skilled in the art to use the laser beam pulses with less than 50 or 51 femtosecond durations in the Horton system for ionizing the isotope, since both Horton and Futami et al. disclose using the laser beam for ionizing the sample.

Sucha et al. (6,723,991) disclose, in figs. 1-7, a system for analyzing a sample, which includes a camera 69 (see fig. 7) to produce an image after a laser beam pulse passing through the sample, thus would have been obvious to one skilled in the art to use the camera in the Horton system for the optical tomography image, since both Horton and Sucha et al. disclose using the laser beam for ionizing the sample.

Analyzing the specimen substrate having isolated molecules or living tissue is considered to be obvious variation in design, since It is well known in the art to use the specimen substrate having isolated molecules or living tissue for ionizing and analyzing molecules, thus would have been obvious to one skilled in the art to use the specimen

Art Unit: 2881

substrate having isolated molecules or living tissue in the Horton system for ionizing analyzing the molecules in the sample.

Claims 1-17, 29-33 and 42-43 are allowed.

Claims 22, 35 and 38-40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


**Reasons for indicating allowable subject matter**

The prior art fails to disclose an apparatus which includes an electrical control system for varying the pulse shape of a laser beam of a pulse shaper based on an evaluation of the characteristics of a specimen detected as recited in claims 1, 22 and 29; the desired eradicated substances in the tissue undergo two photon absorption as recited in claim 35; two photon absorption by a therapeutic substance and substantially prevents three photon induced damage of adjacent healthy tissue as recited in claim 38; a chirped phase mask modifying the laser beam as recited in claim 39; targeted multiphoton damage to modify or destroy certain molecules in the living tissue as recited in claim 40; or means for comparing sensed results as recited in claim 42.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kiet T. Nguyen whose telephone number is 571-272-2479. The examiner can normally be reached on Monday-Friday from 8.00 AM to 6.00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R Lee, can be reached on Monday-Friday. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
**KIET T. NGUYEN  
PRIMARY EXAMINER**